CUBIT Capability Proposal

Technical Area Geometry, Meshing, Infrastructure, GUI, Graphics, etc..	**Technical Lead** Cubit Developer in charge of technical area
Infrastructure	Darryl Melander

MRD Description

Describe the capability in terms of how a user would see it.

Provide a C/C++ API to CUBIT which serves as an alternative to the current text command interface to CUBIT. For each CUBIT command which can be executed at the CUBIT command-line, there would be one or more C functions which serve as an alternative interface to the same behavior.

SRS Description

What needs to be done by Cubit developers to implement this capability? Break the tasks into steps if applicable. (Steps should be on the order of 2 man-weeks or more)

1. Make a list of all the commands in CUBIT.
2. Write one or more function signatures for each command. This step includes defining the data types which will be available to CUBIT API functions.
3. Implement each of the functions. This step includes decisions about how to hook the functions into the code, and how to appropriately expose the functions without exposing all of CUBIT's header files.

Justification

Describe why this is important and what impact it will have if it is implemented. (or not implemented).

This would serve as the foundation of several potential enhancements to CUBIT, including a) an overhaul of the parser, and b) alternative interfaces to CUBIT such as a more comprehensive python interface.
Delineating an explicit set of functions which serves as an interface to CUBIT allows us to distinguish between command parsing (deciding what we're being asked to do) and command execution (carrying out the request). It also discourages the poor practice of using a single shared piece of code to process multiple unrelated commands.

Resources Who will work on this	**Time estimate** How much time will it take in man-weeks	**Targeted Release** 10.2 (August 06), 10.3 (March 2007), 10.4 (August 2007), Future (beyond FY07)
Students	Task 1: 2 weeks?	10.2
Students	Task 2: 4 weeks	10.2
Students / Darryl	Task 3: 4 weeks	10.3

Submitted By:	**Date:**
Darryl	3/28/06